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EVALUATION PLAN (EP)
FOR THE
OPERATIONAL AND ORGANIZATIONAL (O & O) CONCEPT
OF A
COMBINED ARMS BATTALION (CAB)
9TH INFANTRY DIVISION (MOTORIZED)

MAY 1986

US ARMY COMBINED ARMS CENTER AND FORT LEAVENWORTH
FORT LEAVENWORTH, KANSAS

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EVALUATION PLAN (EP)
FOR THE
ORGANIZATIONAL AND OPERATIONAL (O & O) CONCEPT
OF A
COMBINED ARMS BATTALION (CAB)
9TH INFANTRY DIVISION (MOTORIZED)

1.0 INTRODUCTION AND BACKGROUND

1.1.1 PURPOSE. The purpose of this evaluation is to attain results which will be used to refine the operational and organizational concepts of the Combined Arms Battalion (Heavy) equipped with the HMMWV-TOW and to provide a basis for future analysis.

1.1.2 SCOPE. The evaluation will be accomplished in three phases. Phases I will be an analysis of previous studies, reports, analyses and observations (Front End Analysis) of the motorized concept; Phase II will be an instrumented Force Development Test and Evaluation (FDT&E) at Ft Hood, Texas of a Company/Team; and Phase III will be an analysis of the data normally produced from a Battalion training density at the National Training Center. Data collected from these sources will be integrated into a final evaluation report following the NTC rotation of the Combined Arms Battalion (Heavy).

1.2 Program history:

1.2.1 The Infantry Division of the future must be capable of utility in Europe as well as preparedness for specific contingency mission deployment worldwide. The Chief of Staff, US Army, charged the Commander, 9ID (MTZ), with the development of revolutionary approaches in tactics, streamlined organizational structures, and systems that will result in the organization of a new, highly mobile Light Division.

1.2.2 Within this division, studies, analysis, and various field tests (FDTE) have identified a requirement for a highly mobile fighting force capable of conducting quick and violent actions against all types of enemy anywhere on the extended AirLand battlefield. The above examined various organizations and aspects of those organizations with emphasis on mobility, firepower, mission performance, and survivability. The primary finding from all of the above was that the unit must be a CAB. Modification, refinement, and program reorganization have resulted in the current CAB in both a light (L) and a heavy (H) configuration.

1.2.3 As a result of the 18 July 1985 Armored Gun Required Operational Capability (ROC) review, the Vice Chief of Staff, US Army, tasked the Commander, 9ID (MTZ), to harden up the analytical underpinning of the 9ID (MTZ). The Commander, 9ID (MTZ), then requested CAC and TCATA to assist in the conduct of an instrumented appraisal of a CAB (H). At a General Officer

working group meeting at Ft. Hood, TX, attendees decided on a three phased approach to the VCSA tasking:

Phase I - Front end analysis from a literature search.

Phase II - Instrumented company-level force-on-force test at Ft Hood, using TCATA instrumentation.

Phase III - Analysis of data produced from a normal NTC battalion training rotation.

1.2.4 Based on the ADEA Evaluation Advisory Group (EAG) guidance of 3 Apr 86, final changes to the EP were incorporated (APPENDIX G).

1.2.5 The focal points of this evaluation are to shake out the CAB's Operational and Organization (O&O) concept, doctrine, and to obtain objective and subjective data on the units' capability to engage enemy threat formations with flank and rear shots at various engagement ranges.

1.3 Concept description.

1.3.1 The CAB is a task organized combination of assault gun (AG) companies and motorized infantry companies. Within the 9ID(MTZ), there are seven of these battalions. Five of them are heavy battalions with one motorized infantry and two AG companies and two are light battalions with one AG and two motorized infantry companies. The organization of the battalion is flexible and the grouping both of companies into battalions, and within these companies, down to individual weapons systems and infantry squads is dependent on the threat, terrain, and mission to be accomplished. A typical battalion is shown at Figure 1. Each battalion has similar command and control, combat support and combat service support (CSS) functions to direct and support its operations.

1.3.2 The AG company is composed of a HQ section, maintenance team, and four AG platoons, each with five HMMWV-TOWs. The HQ section provides limited administrative and logistical support for the company.

1.3.3 The motorized infantry company is composed of a HQ section, maintenance team, and three infantry platoons. The platoons have three infantry squads of eight soldiers each and one antiarmor squad of eight soldiers equipped with five medium antiarmor weapons. The HQ section provides limited administrative and logistical support for the company. Each vehicle in the Infantry Company is equipped with the MK-19.

1.3.4 The Combat Support Company (CSC) consists of a company HQ for command and control, a maintenance team, and the primary combat support elements of the CAB (scout, mortar, and antiarmor platoons). The scout platoon consists of a platoon HQ and two scout sections each equipped with one HMMWV, armed with MK-19, and two motorcycles. The mortar platoon has six 107mm mortars. The antiarmor platoon has four HMMWV-TOW systems organized into two sections of two each.

1.3.5 The HHC consists of the commander and staff, which provide the command and control for the CAB, and CSS elements (maintenance, medical, communications, and support platoons).

1.4 Concept of employment:

1.4.1 The CAB has been designed as a force which combines ground tactical mobility, considerable antiarmor firepower, and some dismounted capability. The application of these characteristics makes the CAB viable in a range of terrain and threat combinations. The CAB seeks to optimize its tactical advantages through the use of engagement areas in which the enemy can be destroyed by the CAB's organic and/or available weapons systems. Maximum use is made of mobility with night operations, dispersion, and deception. CABs are task organized based on the prevailing factors of mission, enemy, terrain, troops, and time (METT-T). The CAB is vulnerable to enemy weapon systems, and its task organization, tactics, and employment must reflect its strengths and weaknesses.

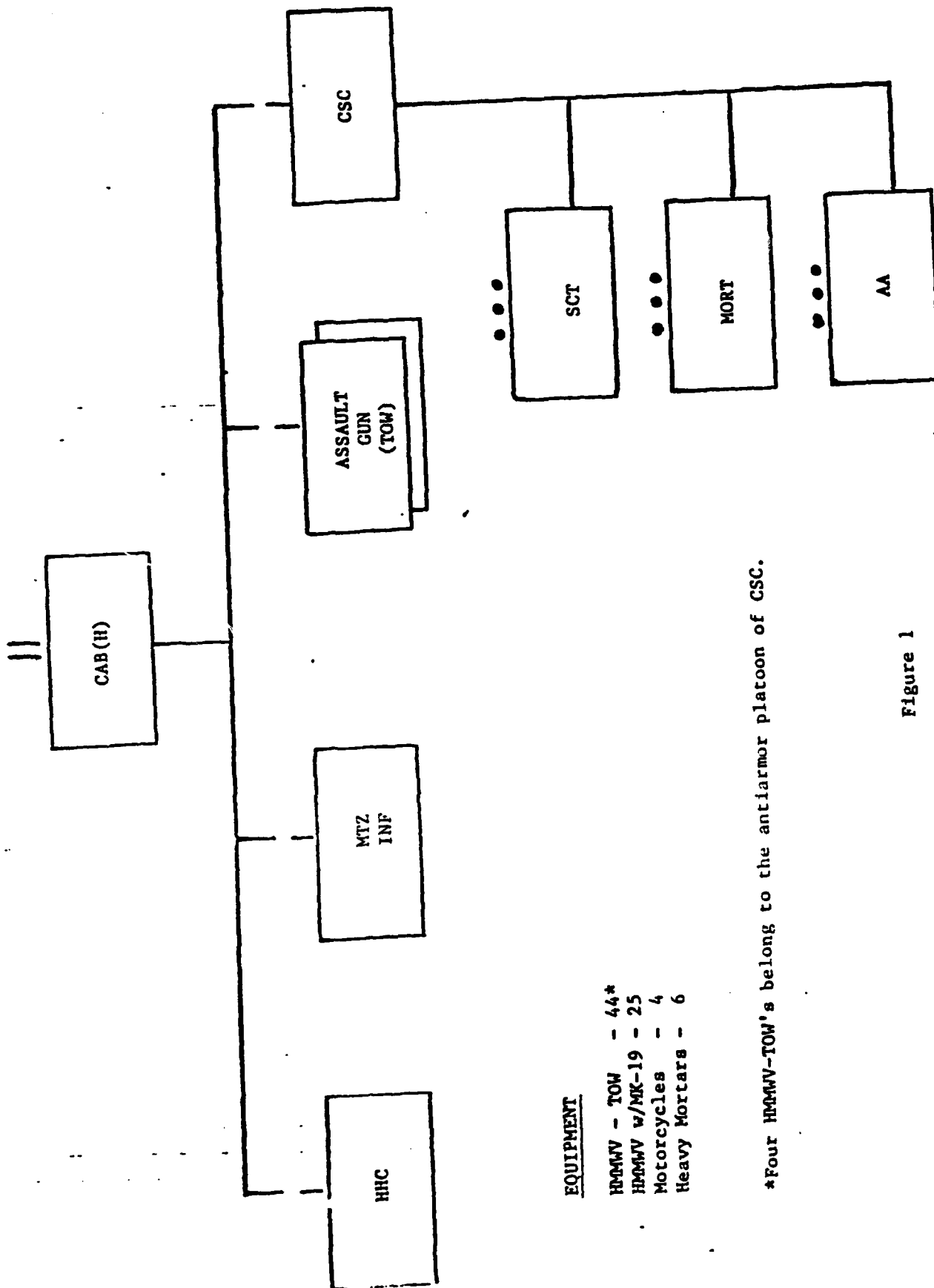
1.4.2 The AG companies are used to destroy armor, often at long ranges, to reduce their own vulnerability. Maneuver is planned and executed around and between engagement areas. AG companies attack prepared positions using long range anti-armor fires, but do not attempt to close with the enemy in the classic sense. They overwatch infantry operations as necessary. The AGs work in concert, with the other weapons systems available within the battalion (HMMWV-TOW, mortars, manportable antiarmor weapons, grenade machine guns, and small arms) and other supporting weapon systems (artillery, attack helicopters, close air support (CAS), etc). AG elements are not employed in less than platoon sized elements and are frequently cross attached with motorized infantry units to form company teams.

1.4.3 The Motorized Infantry Companies are employed in traditional infantry roles, i.e., emplacing and clearing obstacles, patrolling, providing anti-armor ambushes, providing security to GLLD's and assault guns against dismounted infantry, and attacking to secure very limited objectives. In the attack, they need considerable fire support, both direct and indirect, to allow them to close with their objective. Night or periods of limited visibility are preferred. Their mobility is exploited by their ability to approach objectives quickly and with some protection, to maneuver between engagement areas once disengagement has been achieved.

2.0 ISSUES AND MEASURES OF PERFORMANCE.

2.1 Objective: Mission performance.

COMBINED ARMS BATTALION



EQUIPMENT

HMMV - TOW - 44*
HMMV w/MK-19 - 25
Motorcycles - 4
Heavy Mortars - 6

*Four HMMV-TOW's belong to the antiarmor platoon of CSC.

Figure 1

*2.1.1 Issue: What is the capability of the CAB to conduct offensive operations?

2.1.1.1 Scope:

a. This issue will examine the CAB's method of operation when equipped with the HMMWV-TOW while conducting any of the following offensive operations:

- (1) Movement to contact.
- (2) Hasty attack.
- (3) Deliberate attack.

b. This issue will examine the method of employment for all weapon systems, to include individual and crew-served weapons, and antiarmor systems within the intervisibility restrictions.

c. These operations will be conducted on the prevailing terrain and under weather conditions consistent with the mission profile, during the day and at night.

d. The CAB will be employed against an appropriate, current simulated Threat.

e. The CAB will employ the appropriate level of protection against the Threat biological and chemical agents.

2.1.1.2 Measures of Performance (MOP): Empirical sources of data obtained from the FDTE and NTC rotation as well as military judgment, will be used to satisfy this issue. LERs and FERs will be estimated on the basis of post test analysis of video and RTCA instrumentation data. Subjective questionnaire responses will be collected from players and observers. Specifically, the following data will be collected:

MOP 1: The CAB's capability to obtain flank and rear shots.

MOP 2: The CAB's capability to employ artillery.

MOP 3: The CAB's capability to employ mines.

MOP 4: The CAB's capability to employ CAS.

MOP 5: The CAB's capability to employ attack helicopters.

2.1.1.3 Rationale: The CAB must be capable of conducting offensive operations in the covering force, main or rear battle.

*Critical

2.1.1.4 Source: Operational Concepts for Units in an Infantry Division (Motorized); USACAC.

*2.1.2 Issue: What is the capability of the CAB to conduct defensive operations?

2.1.2.1 Scope:

a. This issue will examine the CAB's method of operation, when equipped with the HMMWV-TOW, while conducting either defense or delay.

b. It will examine the method of employment for all weapon systems, to include individual and crew-served weapons, antiarmor systems, within the intervisibility restrictions.

c. These operations will be conducted on the prevailing terrain and under weather conditions consistent with the mission profile, during the day and at night from prepared and hastily prepared positions.

d. The CAB will employ the appropriate level of protection against the Threat biological and chemical agents.

2.1.2.2 Measures of Performance (MOP): Empirical sources of data obtained from the FOTE and MTC rotation, as well as military judgment will be used to satisfy this issue. LERs and FERs will be estimated on the basis of post test analysis of video and RTCA instrumentation data. Subjective questionnaire responses will be collected from players and observers. Specifically the following data will be collected:

MOP 1: The CAB's capability to obtain flank and rear shots.

MOP 2: The CAB's capability to employ artillery.

MOP 3: The CAB's capability to employ mines.

MOP 4: The CAB's capability to employ CAS.

MOP 5: The CAB's capability to employ attack helicopters.

2.1.2.3 Rationale: The CAB must be capable of conducting defensive operations in the covering force, main or rear battle.

2.1.2.4 Source: Infantry Division Motorized Conduct of Battle, Volume III; Operational Concepts for Units in an Infantry Division (Motorized); USACAC.

*2.1.3 Issue: Does the CAB possess the tactical mobility required to perform the operations and missions in the operational concept?

2.1.3.1 Scope: This issue will be addressed subjectively. Instances of impaired freedom of action and the inability to respond to guidance because of a lack of mobility will be recorded.

2.1.3.2 Measures of Performance (MOP): Military judgment will be the primary data source to satisfy this issue. Movement rates will be an indicator of the CAB's ability to rapidly mass forces at critical locations to exploit enemy vulnerabilities. Movement rates for various terrain and light conditions will be collected during the FDTE for both movement to contact and tactical movement on the battlefield. Through FDTE/NTC rotation observations and data from well-structured questionnaires, the following MOP apply:

MOP 1: The CAB's ground mobility with organic vehicle.

MOP 2: The CAB's tactical mobility with intra-theater Air Force aircraft.

MOP 3: The CAB's mobility during deep, close-in and rear battles.

MOP 4: The CAB's capability to traverse terrain.

MOP 5: The CAB's mobility during limited visibility.

2.1.3.3 Rationale: The CAB must have the capability to rapidly mass forces at critical locations to exploit enemy vulnerabilities and move more quickly than Threat-motorized/mechanized forces.

2.1.3.4 Source: Operational Concepts for Units in an Infantry Division (Motorized); USACAC.

*2.1.4 Issue: What are the command, control, and communications (C3) capabilities of the CAB?

2.1.4.1 Scope:

a. This issue will examine the functions of the commander and staff during operations, i.e., their ability to maintain unit/element integrity and communications capabilities.

b. It will also examine the use of intelligence information generated from internal and external sources by the commander and staff in planning and executing missions. This will be subjectively evaluated.

2.1.4.2 Measures of Performance (MOP): Military judgment will be the primary data source to satisfy this issue. Objectively, FM transmissions will be recorded to establish an audit trail of orders passed over communication nets. The following MOP apply:

MOP 1: The CAB's capability to receive and disseminate intelligence.

MOP 2: The location of communication equipment.

MOP 3: The CAB's communication limitations.

MOP 4: The responsiveness to the leader's orders.

2.1.4.3 Rationale: The CAB must be capable of reacting to information and initiating timely counter action. The CAB must also be capable of maintaining C3 and disseminating intelligence under all conditions to perform the missions identified in the operational concept.

2.1.4.4 Source: Operational Concepts for Units in an Infantry Division (Motorized); USACAC.

2.1.5 Issue. What is the deployability profile of the CAB?

2.1.5.1 Scope. This issue will examine the strategic deployability of the personnel and equipment of the CAB.

2.1.5.2 Measures of Performance (MOP): Data to satisfy this issue will be obtained analytically. Several models are available to address the CAB's deployability profile. Specifically, the following data will be addressed:

MOP 1: The CAB's Air Force aircraft transportability profile.

MOP 2: The CAB's naval surface vessel transportability profile.

MOP 3: The CAB's rail transportability profile.

Rationale: The CAB must be capable of strategic deployability to the Theater of Operations.

Source. Operational Concepts for units in an Infantry Division (motorized); USACAC.

2.2 Objective: Survivability.

*2.2.1 Issue: What is the survivability of the CAB?

2.2.1.1 Scope: This issue will examine the survivability of the CAB when equipped with HMMWV-TOW. Areas of particular concern are the following:

a. The relationship of mobility to survivability (i.e. for each friendly kill, whether it was moving or stationary).

b. Survivability against direct and indirect fire, and enemy helicopters.

2.2.1.2 Measures of Performance (MOP): The following MOP will examine the CAB's survivability when equipped with the HMMWV-TOW. Even though real-time casualty assessment will be available for indirect fire through the use of TAFIS, and attack helicopters and MK19s will be instrumented with MILES, military judgment will be required to answer this issue. The following MOP apply:

MOP 1: The CAB's capability to survive against direct weapons fire.

MOP 2: The CAB's capability to survive against indirect weapons fire.

MOP 3: The CAB's capability to survive threat attack helicopter engagements.

MOP 4: The CAB's capability to negotiate threat-employed mine warfare.

MOP 5: The CAB's relationship of mobility to survivability (i.e., for each friendly kill, whether the CAB was moving or stationary).

MOP 6: The CAB's combat losses of personnel (in 10- percent range bands).

2.2.1.3 Rationale: To be effective, the CAB must be able to survive on the integrated battlefield.

2.2.1.4 Source: Operational Concepts for Units in an Infantry Division (Motorized); USACAC.

2.3 Objective: Logistics.

*2.3.1 Issue: Is the CAB logistically supportable?

2.3.1.1 Scope: Both sustainability and supportability will be examined.

2.3.1.2 Measures of Performance (MOP): The primary source of data to answer this issue will come from the NTC rotation where the CAB will be subjected to prolonged periods of continuous simulated combat. The following MOP apply:

MOP 1: The CAB's ammunition consumption by type weapon system over time by scenario.

MOP 2: The CAB's fuel consumption by type vehicle over time by scenario.

MOP 3: The CAB's observed shortfalls in resupply.

MOP 4: The CAB's observed shortfalls in maintenance.

MOP 5: The CAB's observed shortfalls in recovery.

2.3.1.3 Rationale: The CAB must be capable of supporting itself and being supported to accomplish its assigned mission.

2.3.1.4 Source: Operational Concepts for Units in an Infantry Division (Motorized); USACAC.

3.0 DENDRITIC DATA SOURCE MATRIX

| <u>OBJECTIVE</u> | <u>ISSUE</u> | <u>DATA</u> | <u>SOURCE</u> | | | <u>OTHER</u> |
|-------------------------|-------------------|--|---------------|------------|------------|--------------|
| | | | <u>FDTE</u> | <u>FEA</u> | <u>NTC</u> | |
| 2.1 Mission Performance | *2.1.1 Offense | <u>MOP 1</u> Flank, rear & frontal shots | P | S | S | |
| | | <u>MOP 2</u> Employ artillery (FASCAM) | P | S | P | |
| | | <u>MOP 3</u> Employ mines | S | S | P | |
| | | <u>MOP 4</u> Employ CAS | | S | P | |
| | | <u>MOP 5</u> Employ attack helicopters | P | S | P | |
| | *2.1.2 Defense | <u>MOP 1</u> Flank rear & frontal shots | P | S | S | |

FDTE - CAB-instrumented appraisal

FEA - Front-end analysis

NTC - National Training Center rotation (Phase III) after action report

OTHER - Modeling

P - Primary means of collecting data

S - Secondary means of collecting data

| <u>OBJECTIVE</u> | <u>ISSUE</u> | <u>DATA</u> | <u>SOURCE</u> | | | |
|------------------|--|--|---------------|------------|------------|--------------|
| | | | <u>FDTE</u> | <u>FEA</u> | <u>NTC</u> | <u>OTHER</u> |
| | | <u>MOP 2</u> Employ artillery (FASCAM) | P | S | P | |
| | | <u>MOP 3</u> Employ mines | S | S | P | |
| | | <u>MOP 4</u> Employ CAS | | S | P | |
| | | <u>MOP 5</u> Employ attack helicopters | P | S | P | |
| | *2.1.3 Mobility | <u>MOP 1</u> Ground Mobility | S | S | P | |
| | | <u>MOP 2</u> Air Force Aircraft | S | S | S | P |
| | | <u>MOP 3</u> Battlefield Mobility | S | S | P | |
| | | <u>MOP 4</u> Terrain Restrictions | S | S | P | |
| | | <u>MOP 5</u> Limited Visibility | S | S | P | |
| | *2.1.4 Command, Control, Communications | <u>MOP 1</u> Receive and disseminate intelligence | S | S | P | |

| <u>OBJECTIVE</u> | <u>ISSUE</u> | <u>DATA</u> | <u>SOURCE</u> | | | <u>OTHER</u> |
|-------------------|-------------------------------|---------------------------------------|---------------|------------|------------|--------------|
| | | | <u>FDTE</u> | <u>FEA</u> | <u>NTC</u> | |
| | | <u>MOP 2</u> Commo equipment location | P | | S | |
| | | <u>MOP 3</u> Commo limitations | S | | P | |
| | | <u>MOP 4</u> Orders responsiveness | S | | P | |
| | 2.1.5 Strategic deployability | <u>MOP 1</u> Air Force aircraft | S | | S | P |
| | | <u>MOP 2</u> Naval vessels | | | | P |
| | | <u>MOP 3</u> Rail | | | | P |
| 2.2 Survivability | *2.2.1 Survivable | <u>MOP 1</u> Direct fire | P | P | P | |
| | | <u>MOP 2</u> Indirect fire | P | P | S | |
| | | <u>MOP 3</u> Helicopters | S | S | P | |
| | | <u>MOP 4</u> Mines | S | S | S | |
| | | <u>MOP 5</u> Mobility relationship | P | | P | |
| | | <u>MOP 6</u> Combat loss effect | | S | S | P |

| <u>OBJECTIVE</u> | <u>ISSUE</u> | <u>DATA</u> | <u>SOURCE</u> | | | <u>OTHER</u> |
|------------------|-----------------------|---|---------------|------------|------------|--------------|
| | | | <u>FDTE</u> | <u>FEA</u> | <u>NTC</u> | |
| 2.3 Logistics | *2.3.1 Sustainable | <u>MOP 1</u> Ammunition consumption | S | S | P | |
| | | <u>MOP 2</u> Fuel consumption | S | S | P | |
| | | <u>MOP 3</u> Resupply | S | S | P | |
| | | <u>MOP 4</u> Maintenance | S | S | P | |
| | | <u>MOP 5</u> Recovery | S | S | P | |

4.0 EVALUATION METHODOLOGY

4.1 Analytical techniques: The CAB will be evaluated based upon all available information from the front end analysis, Company Team Test, study, and the NTC rotation. Each issue will be evaluated using operations research techniques and military judgment. This data will be evaluated from an operational point of view to determine if the O&O concept will enable the accomplishment of TOE missions with organic resources and expanded missions when appropriately augmented. Armor, Infantry, Aviation, Engineer, Field Artillery, and Logistics Subject Matter Experts (SMEs) will be invited to observe the FDTE to provide their assessment of subjective areas of the test.

4.1.1 Adequacy of testing and the validity of test results. The evaluation will examine the quality, quantity, and suitability of all available data, to ensure that it is relevant and properly addresses the issues. Direct observation of the Company Team Test by the evaluator and SMEs and the assessment of test results will determine the credibility of the findings contained in the Company Team test report and ensure that the test conducted was consistent with the tenets of the division operational concept.

4.1.2 Effects of test limitations. The evaluator will assess the effect that the test limitations will have on the evaluation. These effects and the degree of degradation they have on the evaluation will be addressed in the ER. The following conditions are known limitations to the Company/Team Test:

(1) A Company/Team operation will lack much of the synergism provided to a battle by an entire battalion. Especially with respect to maneuver, battlefield deception and target hand-off, the effects of combat multipliers available to the commander are best exploited at battalion level due to the relative unimportance of holding terrain.

(2) Close Air Support will not contribute to the battle outcome.

(3) FM secure capability will not be available.

(4) Insufficient time and money available to develop a baseline comparison for the HMMWV-TOW equipped CAB(H) Company/Team.

(5) Cannot use smoke because it degrades the TAFIS lasers.

(6) Cannot dismount the TOW missile because of the instrumentation.

4.1.3 Analysis of issues.

4.1.3.1 The performance of the CAB will be compared to the tenets and techniques of the operational concept. The evaluator will:

a. Analyze these comparisons to make an assessment of the CAB's ability to successfully perform its mission in combat.

a. Analyze these comparisons to make an assessment of the CAB's ability to successfully perform its mission in combat.

b. Determine the impact that shortcomings have on the CAB in terms of operational manpower, tactics, and mission accomplishment.

4.1.3.2 Data from the front end analysis, Company/Team Test, study, and the NTC rotation will be used to evaluate designated issues. The Dendritic Data Source Matrix, para 3.0, displays the primary and secondary sources of information for each issue.

4.1.4 Conclusions. In addition to conclusions associated with each issue, the evaluator will make conclusions on the adequacy of testing and further testing or force-structuring efforts.

4.1.5 Operational effectiveness/military utility. A statement of the CAB's strengths and weaknesses will be included in the ER. The final statement will:

a. Indicate the CAB's ability to perform its mission.

b. Include any special logistic considerations.

c. Assess augmentation considerations.

d. Indicate possible improvements to the structure or tactics of the Combined Arms Battalion.

4.2 Test concepts:

4.2.1 User tests: Not applicable.

4.2.2 Development testing (DT): Not applicable.

4.2.3 Force development testing and experimentation (FDTE): An instrumented CAB Company Team FDTE will be conducted at Ft. Hood, TX, in 1QFY87. The focus will be to gather data, specifically the number of flank and rear engagements, to answer the critical issues. Objective and subjective data will be collected and analyzed. The company team test will address the six stated issues as they apply to the CAB Company Team.

4.2.4 Contractor tests: Not applicable.

4.3 Nontest concept:

4.3.1 Studies: Applicable data and results from previously conducted studies will be used to answer the issues. A short analysis of this applicable data and results studies and their interface with the issues is at Appendix D.

4.3.2 Simulations and wargames: Applicable data and results from previously conducted wargames/simulations will be used to answer the issues. A short

analysis of this applicable data and results and their interface with the issues is at Appendix D.

4.3.3 Front-end analysis. A front-end analysis, conducted by ADEA, of all previously documented research and appraisals of the O&O concept is at Appendix D. At the time of publication of this Evaluation Plan, approximately 90% of the Front End Analysis had been completed with negligible results because previously studied CAB(H) designs involved the use of surrogate equipment.

APPENDIX A
MAJOR MILESTONES

| <u>Event</u> | <u>Agency</u> | <u>Date</u> |
|--|---------------|-------------|
| OTP Submitted | TCATA | 29 Oct 85 |
| Proponent Designation | CAC | 20 Dec 85 |
| Front-end Analysis | ADEA | Jan 86 |
| Threat TSP | USAARMS | 28 Feb 86 |
| Evaluation Advisory Group staffing completed | CAC | 18 Apr 86 |
| EP Approval | CAC | 31 May 86 |
| Evaluation Plan to GOSC members | CAC | 31 May 86 |
| Scenarios Submitted | USAARMS | 20 May 86 |
| Test Support Package | USAARMS | 30 May 86 |
| Test Design IPR | TCATA | 29 Jul 86 |
| Safety Release | TRADOC | 27 Sep 86 |
| OTRS | 9ID/USAARMS | 27 Sep 86 |
| Start Company Team Test | TCATA | 27 Oct 86 |
| End Company Team Test | TCATA | 18 Nov 86 |
| Company Team Test Report Published | TCATA | 22 Jan 87 |
| Company Team Test ER Submitted | CAC | 27 Feb 87 |
| NTC Training Rotation | 9ID | 1QFY88 |
| NTC After Action Review | 9ID/CAC | 2QFY88 |
| ER Submitted | CAC | 2QFY88 |

APPENDIX B

POINTS OF CONTACT

The Proponent is:

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Co-proponent is:

Commandant
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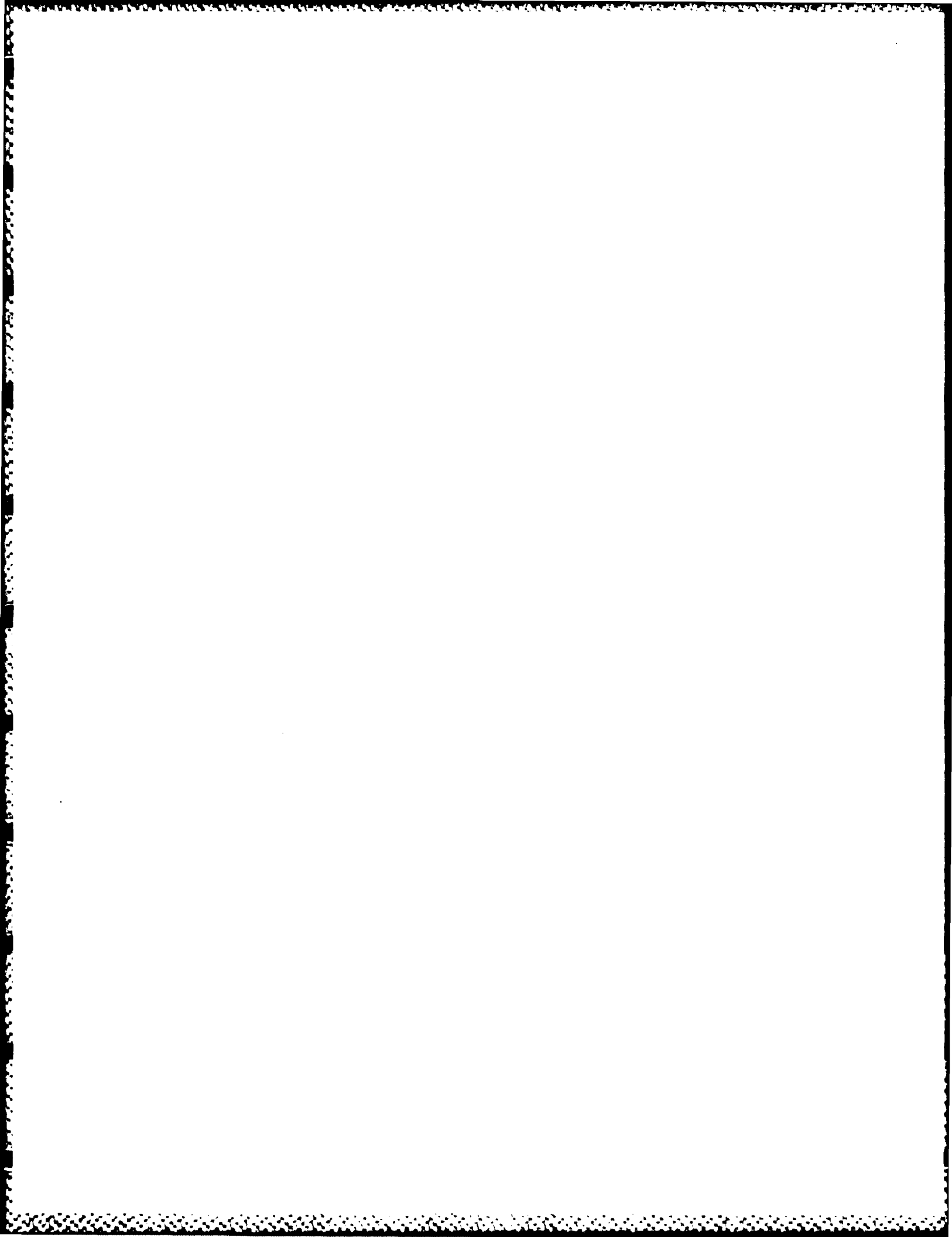
Commander
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APPENDIX C
COORDINATION

1. SOURCE:

| | <u>COMMENTS RECEIVED/NONCONCUR</u> | <u>COMMENTS ACCEPTED</u> | <u>NOT ACCEPTED</u> | <u>REMARKS</u> |
|-----------------|--|------------------------------|-------------------------|----------------|
| TRADOC | - | - | - | - |
| USAARMS | - | - | - | concur |
| USAIS | - | - | - | concur |
| 9ID (MTZ)/ADEA | 21 | 18 | 3 | |
| LOGC | - | - | - | - |
| SOLDIER SPT CEN | - | - | - | - |
| USALEA | - | - | - | - |
| TCATA | 22 | 14 | 8 | - |

2. CONSIDERATION OF COMMENTS NOT ACCEPTED:

a. 9ID (MTZ)/ADEA:

COMMENT: 1.1.1 - Delete. Concur with the addition of ...Combined Arms Battalion (Heavy), equipped with the HMMWV-TOW.....

COMMENT: 1.2.2 - Delete FDTE in the first line.

REBUTTAL: These were classified as FDTEs.

COMMENT: 1.2.4 - Delete

REBUTTAL: In his letter to the VCSA, dated 24 Oct 85, Subject: Combined Arms Battalion Instrumental Evaluation, Cdr, ADEA stated in para 3; "While there is some lessening of the intensity to pursue an AGS, I conclude that we still need to know the answers to the question Jack Woodmansee has raised regarding the Division's Operational and Organization (O&O) concept and whether or not we will have as many flank shots as intended". CAC agrees to include the refinement of the CAB(H) O&O concept and doctrine focal points of the evaluation (Rewrite of this para is at 1.2.4)

COMMENT: 2.0 - After Issues and Criteria; ADD: "These issues and criteria will be resolved through analysis of data collected from all three phases of the evaluation."

REBUTTAL: Above information is redundant. The three phases of this evaluation were outlined in your comment in para 1.2.3.

b. TCATA:

COMMENT: EP should be consistent throughout and focus on the Combined Arms Battalion (Heavy) specifically. The title page needs to state Combined Arms Battalion (Heavy).

REBUTTAL: Members of the February 86, working group made a conscious decision to title the EP "Combined Arms Battalion" due to the peculiar task organization that occurs within the 9ID (MTZ). Company size units within the CAB can be easily task organized to form either a CAB(H) or a CAB(L).

COMMENT: 1.3 - This paragraph (as a concept) should limit itself to discussing the tested unit, i.e., the Combined Arms Battalion (Heavy).

REBUTTAL: This paragraph gives an overall view of the Light Division (Motorized). Inferences may be made on the final design of the division based on the evaluation.

COMMENT: 2.1.1.1.g, 2.1.1.2, 2.1.2.1.f, 2.1.2.2. Delete the sentences that refer to the LER and FER.

REBUTTAL: The working group members made a conscious decision to leave LER/FER in the EP. If the information is available, a subjective LER/FER assessment will be made by the independent evaluator.

COMMENT: 2.2.1.1.c - Delete this paragraph.

REBUTTAL: The Independent Evaluation team will attempt to observe/gather data to make a subjective assessment based on JANUS gaming and the NTC Rotation.

COMMENT: 2.2.1.1.f - For data column paragraph 2.2.1.1.f, the FDTE source column should reflect "Not Applicable".

REBUTTAL: Paragraph 2.2.1.1.f - Is not contained in this EP.

APPENDIX D

ADEA FRONT-END ANALYSIS

Data source matrices have been developed for each of the six issues contained in the CAB Evaluation Plan. The elements listed for each issue were extracted from the issue's scope in the EP. "P" indicates a primary data source and "S" indicates a secondary data source.

The numbers 1-13 in the matrices indicate the studies/tests/analyses which contain available data on the CAB or CAB concept. They were conducted in the last 5 years.

- 1: HTLD Task Force Study
- 2: Infantry Battalion Mortar Test
- 3: Infantry Battalion Antiarmor Company Test
- 4: Infantry Maneuver Concept Test
- 5: Two-Company Antiarmor Concept Test
- 6: Light Motorized Infantry Battalion (LMIB) Test
- 7: Mobile Assault Gun Battalion (MAGB) Test
- 8: Combined Arms Battalion (CAB) Study
- 9: Tactical Mobility Study
- 10: Capabilities of the Light Infantry Platoon-Motorized (CLIP-M) Test
- 11: CAB(H) Comparisons Analysis
- 12: Interim Assault Gun System (AGS) Analysis
- 13: Interim-Motorized Infantry Division Capabilities Analysis (I-MIDCA)

ISSUE 1: What is the capability of the CAB to conduct offensive operations?

| | | STUDIES/TESTS | | | | | | | | | | | | |
|----|----------------------|---------------|---|---|---|---|---|---|---|---|----|----|----|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1. | MOVE TO CONTACT | | | | | | | | | | | | | |
| | a. LER | | | | | | | S | | | | | | |
| | b. FER | | | | | | | S | | | | | | |
| | c. SER | | | | | | | | | | | | | |
| | d. FLANK SHOT | | | | | | | | | | | | | |
| | e. REAR SHOT | | | | | | | | | | | | | |
| | f. FRONTAL SHOT | | | | | | | | | | | S | | |
| | g. WPNS FIRE REQUEST | | P | | | | | S | | | | | | |
| 2. | HASTY ATCK | | | | | | | | | | | | | |
| | a. LER | | | | | | | S | P | | | | | P |
| | b. FER | | | | | | | S | P | | | | | P |
| | c. SER | | | | | | | | P | | | | | P |
| | d. FLANK SHOT | | | | | | | | | | | | | |
| | e. REAR SHOT | | | | | | | | | | | | | |
| | f. FRONTAL SHOT | | | | | | | | | | | S | | |
| | g. WPNS FIRE REQUEST | | | | | | | | | | | | | |
| | | P | | | | | S | | | | | | | |
| 3. | DELIBERATE ATCK | | | | | | | | | | | | | |
| | a. LER | S | | | | | | S | P | | S | | S | P |
| | b. FER | S | | | | | | S | P | | S | | S | P |
| | c. SER | S | | | | | | | P | | S | | S | P |
| | d. FLANK SHOT | | | | | | | | | | | | | |
| | e. REAR SHOT | | | | | | | | | | | | | |
| | f. FRONTAL SHOT | S | | | | | | | | | | S | | |
| | g. WPNS FIRE REQUEST | | S | | | | | S | | P | | | | |

Discussion:

The CAB Study contains quantitative measures of effectiveness (MOEs) loss exchange ratio (LER), force exchange ratio (FER), specific system exchange ratio (SER), and is considered the primary data source for CAB data. This study wargamed the CAB in both Middle Eastern and European offensive and defensive scenarios.

The Interim AGS Analysis, like the CAB Study, used the JANUS model. Although this study only wargamed attack scenarios, the same variables were measured as in the CAB Study.

Quantitative MOEs (LER, FER, and SER) were made in the instrumented CLIP-M Test. This, however, was only at platoon level and apparently covers only the case of deliberate attack.

The HTLD Task Force Study used the BATTLE and CARMONETTE wargames with LER and FER measured for attack situations. Although SERs were not given, the

killer-victim scoreboards can provide secondary information on individual systems.

The MAGB Test is considered a secondary source for LER and FER MOE, in view of statements in the IER that these clearly exceeded the criteria when the battalion was task-organized. This test included movement to contact, hasty and deliberate attacks.

None of the data sources provide an explicit separation of the effects of flank and rear shots. The "CAB(H) Comparisons" do show how shot effectiveness depends on distance, so this might qualify as a secondary source. Similarly, the HTLD Task Force Study shows shot effectiveness by range bands.

The Infantry Battalion Mortar Test and the CLIP-M Test both provide objective data on response to weapons fire requests. Whereas the Mortar Test covers movement to contact, hasty and deliberate attacks, the scenario in CLIP-M is best described as deliberate attack. As an instrumented test, CLIP-M is considered primary where applicable. The MAGB Test provides subjective assessments of calls for fire and response times and is, therefore, considered a secondary source.

The I-MIDCA Study utilized both the JANUS and CARMONETTE models to game the CAB in offensive Southwest Asian and European scenarios. It is considered a primary data source.

On the general subject of offensive operations, several of the data sources include voluminous interview comments and questionnaire data, but they are not specifically directed at the issues as given in the EP.

ISSUE 2: What is the capability of the CAB to conduct defensive operations?

STUDIES/TESTS

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|----------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|
| 1. DEFENSE | | | | | | | | | | | | | |
| a. LER | S | | | | | | S | P | | S | | | |
| b. FER | S | | | | | | S | P | | S | | | |
| c. SER | S | | | | | | | P | | S | | | |
| d. FLANK SHOT | | | | | | | | | | | | | |
| e. REAR SHOT | | | | | | | | | | | | | |
| f. FRONTAL SHOT | S | | | | | | | | | | S | | |
| g. WPNS FIRE REQUEST | | S | | | | | S | | P | | | | |
| 2. DELAY | | | | | | | | | | | | | |
| a. LER | P | | | | | | S | | | | | | |
| b. FER | P | | | | | | S | | | | | | |
| c. SER | S | | | | | | | | | | | | |
| d. FLANK SHOT | | | | | | | | | | | | | |
| e. REAR SHOT | | | | | | | | | | | | | |
| f. FRONTAL SHOT | S | | | | | | | | | | S | | |
| g. WPNS FIRE REQUEST | | P | | | | | S | | | | | | |

Discussion:

All the discussion of data sources under Issue 1 which address deliberate attack also cover defense, with the same breakdown between primary and secondary sources, subject to two exceptions. The Interim AGS Analysis and I-MIDCA were offensive scenarios only.

There are fewer sources that address delay issues. The CLIP-M did not include delay, and it is doubtful whether the defensive operations analyzed in the CAB Study can properly be defined as delay, although the insights gained extend beyond narrow definitions. Otherwise, relevant sources are as discussed previously, in particular, the HTLD Task Force Study, the Infantry Battalion Mortar Test, the MAGB, and the CAB(H) Comparisons.

ISSUE 3: Does the CAB possess the inherent mobility required to perform the operations and missions in the operational concept?

| | STUDIES/TESTS | | | | | | | | | | | | |
|-------------------------------|---------------|---|---|---|---|---|---|---|---|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1. LIMITATIONS/ CONDITIONS | S | | | S | | | S | | P | S | | | P |
| 2. IMPACT OF HMMWV TOW | P | | | | | | | | S | | | | P |

Discussion:

One primary data source for limitations and conditions on the mobility of a CAB is the Tactical Mobility Study. Representative combinations of vehicles for reconnaissance and maneuver missions are compared to C-series and H-series divisions, based on mobility characteristics of the vehicles. For the HTMD, vehicles are the FAV, HMMWV and ITV. Mortars are towed by HMMWVs, but considered in a separate combat support mission combination. Another detailed source is the HTLD Task Force Study. Secondary sources are the Infantry Maneuver Concept, the MAGB test and the CLIP-M Test. The first two of these provided insights, but did not fully address the issue due to the use of surrogates for key vehicles. For mobility issues, the CLIP-M test was investigative.

The second primary data source for limitations and conditions on the mobility of a CAB was the I-MIDCA Study. I-MIDCA's tactical mobility analysis used the same analysis methodology as the Tactical Mobility Study to determine capabilities. I-MIDCA contains an analysis of the impact of HMMWV-TOW on airmobility.

The impact of the HMMWV-TOW on mobility of the CAB has not been addressed in detail in any of the data sources. The HTLD Task Force Study included HMMWV-TOW with assessments of its effectiveness, so this is the primary data source. The Interim AGS Analysis played HMMWV-TOW as the interim assault gun, so indirect inferences could be drawn by comparing these results to the CAB Study. Secondary information is available from the Tactical Mobility Study, at least to compare HMMWV mobility characteristics to ITV, M60A3, etc.

ISSUE 4: What are the command, control and communications (C3) capabilities of the CAB?

| | STUDIES/TESTS | | | | | | | | | | | | |
|------------------------------------|---------------|---|---|---|---|---|---|---|---|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1. COMMAND & STAFF FUNCTIONS | S | S | S | S | S | S | S | | | P | | | |
| 2. UNIT INTEGRITY/ COMM CAPABILITY | S | | S | S | S | S | S | | | P | | | |
| 3. INTELLIGENCE | | | | | | P | S | | | S | | | |

Discussion:

Most of the data relevant to this issue is found in tests. As an instrumented test, CLIP-M should be considered the primary data source for command and staff functions and for communications capability, although it provides only a subjective assessment of intelligence capability. The LMIB Test provides specific data on communications and intelligence. For lack of alternatives, it may be considered the primary data source on intelligence.

Other sources are considered secondary, because data is predominantly subjective, i.e. questionnaires and comments. Command and staff functions are covered by the Infantry Battalion Mortar Test, the Antiarmor Company Test, the Infantry Maneuver Concept, the Two-Company Antiarmor Concept Test, and the MAGB Test. All but the first of these deal with unit integrity and communication's capability. The MAGB Test also addresses intelligence.

The HTLD Task Force Study included assessments of C3, both of which are considered secondary data sources.

ISSUE 5: What is the survivability of the CAB?

| | STUDIES/TESTS | | | | | | | | | | | | |
|--------------------------------------|---------------|---|---|---|---|---|---|---|---|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1. RELATE TO MOBILITY | S | | S | | S | S | S | S | | S | | | P |
| 2. AGAINST DIRECT & INDIRECT FIRE | S | | S | | | | S | | | P | | | P |
| 3. EFFECT OF PERS LOSSES | S | | | | | | | S | | P | | | |

Discussion:

As an instrumented test, CLIP-M should be considered a primary data source for survivability against direct and indirect fire. For survivability against direct and indirect fire, subjective data is available from the Two-Company Antiarmor Company Test (several comments relevant to survivability are included at Tab F of the test report), and also from the MAGB Test. However, neither of these tests is definitive because of their reliance on surrogate vehicles. For effectiveness against direct and indirect fire, the HTLD Task Force Study also provides data in detail. For personnel losses, the instrumented data at platoon level of CLIP-M is complemented by the battalion-level simulation data of the CAB Study (LER, FER). Treatment is at a secondary level in the HTLD Task Force Study. Another issue, the relationship of mobility to survivability, is considered subjectively in all the tests and studies mentioned above as well as in the Two-Company Antiarmor Concept Test and the Light Motorized Infantry Battalion Test. These should be considered secondary data sources.

The I-MIDCA Study, a primary data source, contains a survivability analysis of vehicles against direct and indirect fire as well as the mobility impact on survivability.

ISSUE 6: What are the observed logistic implications for the CAB company team?

| | STUDIES/TESTS | | | | | | | | | | | | |
|---|---------------|---|---|---|---|---|---|---|---|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1. AMMUNITION CONSUMPTION | S | S | | S | | | S | P | | S | | | |
| 2. FUEL CONSUMPTION | | S | | S | S | | | P | | | | | |
| 3. SHORTFALLS IN RESUPPLY & MAINTENANCE | S | S | S | S | S | | S | | | | | | |

Discussion:

The primary data source for ammunition consumption and fuel consumption is the CAB Study. The CLIP-M Test also provides data for ammunition consumption.

Five other tests are secondary data sources, since the data is from questionnaires and interview comments. The MAGB Test addresses ammunition consumption, while the Two-Company Antiarmor Concept Test addresses fuel consumption. The Infantry Battalion Mortar Test and the Infantry Maneuver Concept addresses both ammunition and fuel. The issue of shortfalls in resupply and maintenance is covered in all four of these tests as well as in the Two-Company Antiarmor Company Test. The HTLD Task Force Study discusses ammunition consumption and shortfalls in resupply and maintenance. These discussions are brief and superficial.

Combined Arms Battalion (CAB) Studies and Tests

1. STUDY TITLE: HTLD Task Force Study

STUDY ACTIVITY: CAORA/USAIS

DATE COMPLETED: 15 Dec 83

PURPOSE: To assess the adequacy of O&O concepts of 9ID (HTLD) Light Motorized and Assault Gun assets, when organized as task forces, to meet mission requirements. To compare the capability of the task force organization to C-Series division unit capability and determine the preferred 9ID (HTLD) task force structure for delay, defense and attack missions.

SCENARIO: The combat effectiveness of the task forces was evaluated utilizing a Middle Eastern environment with European vignettes included as time allows. The TOE and force structures will be compared to selected C-Series task force structures in pairwise fashion. The analysis effort will be progressive. Potential fixes derived in the Middle Eastern environments will be used to revise the respective force structures before runs in the European scenarios. NBC employment will not be played.

SCOPE AND/OR TACTICAL CONTEXT: The task force structures were examined for defense and attack missions. Selected HTLD task force structures will be compared to selected C-Series task force structures in pairwise fashion. The analysis effort will be progressive. Potential fixes derived in the Middle Eastern environments will be used to revise the respective force structures before runs in the European scenarios. NBC employment will not be played.

METHODOLOGY: CARMONETTE and BATTLE gaming coupled with appropriate analysis and FTX/CPX insights were used to evaluate and describe the mission O&O-oriented needs of the Light Motorized Infantry and Assault Gun units, the deficiencies of the weapons systems under examination in meeting these needs and the areas where improvement could be achieved. The analysis examined employment of HTLD units considering varying personnel, equipment and tactics.

FINDINGS: Classified.

2. TEST TITLE: Infantry Battalion Mortar Test (T3)

TEST ACTIVITY: ADEA

TEST DATES: 1 May - Dec 81

PURPOSE: The test investigated the concept of proposed mortar configurations within an infantry battalion. Specific objectives were to investigate (in the proposed configurations): the impact of the mortars upon battalion operations, the capabilities of the battalion mortar organization, the organizational concept, the logistical support concept, and the training implications.

SCOPE, TACTICAL CONTEXT AND LIMITATIONS: Data was collected on a noninterface basis during a 4-day 9ID FTX (Phase I), and during three weeks of structured field trials (Phases II, III, and IV). Phases I and II were conducted in the baseline configuration at Yakima Firing Center, WA. Phase III was conducted in the baseline configuration at Ft. Lewis, WA. Phase IV was conducted in the Div 86 configuration at Yakima Firing Center. In the Div 86 configuration, the battalion mortar platoon consisted of two mortar sections, each with its own FDC. Each section consisted of three 81-mm mortars which were surrogates for the improved 81-mm (I-81) mortar under development. There were no mortars at company level. The baseline configuration (which was compared to the Div 86) consisted of four 81-mm surrogates in the battalion mortar platoon and three lightweight company mortars in each rifle company.

ISSUE RESOLUTION: Resolution of the test issues were based on noninstrumented test data from the field trials and from subjective questionnaires.

MAJOR FINDINGS: The number of mortars in the battalion was considered adequate in meeting indirect fire support needs under the baseline concept; however, under Div 86, the number of tubes was found to be from borderline to inadequate. Responsiveness was considered adequate for both configurations. There were no significant problems with command in either configuration. However, control and coordination posed some problems, which were primarily attributable to communication equipment shortages. Battalion planning of indirect fire support was adequate for the baseline and very adequate for the Div 86 configuration. General support (priority of fire) was considered to be the best method of employment for both configurations, except for the deliberate defense, which opted for direct support employment. There were no significant differences found in the two configurations concerning equipment sufficiency to support the mission, or in the ability of the battalion logistical system to provide support.

3. TITLE TITLE: Operational Test of the Infantry Battalion Antiarmor Company (T4).

TEST ACTIVITY: ADEA

TEST DATES: May - Nov 82.

PURPOSE: The test provided data for comparison of the effectiveness of the proposed Antiarmor Company configurations (four platoons of four TOW each, and four platoons of six TOWs each) within an infantry battalion. Specific objectives were to investigate the impact of each antiarmor configuration on battalion operations, its capability to conduct assigned missions, the logistical and administrative support implications, the training implications, and the organizational and equipment changes that could be made to improve unit capability.

SCOPE, TACTICAL CONTEXT AND LIMITATIONS: Data was collected during one 4-day 9ID FTX (Phase I), and three structured trial weeks (Phases II, III, and VI). The trials were conducted as force-on-force actions with trains added to provide realism. Phases I, II and VI were conducted in a mountain/desert environment at Yakima Firing Center, WA. Phase III was conducted in an European environment at Fort Lewis, WA. In addition to the data collected

European environment at Fort Lewis, WA. In addition to the data collected during the field trials, questionnaires were completed by all players in the test unit including battalion personnel. Key personnel were interviewed, and comments were collected from observers and senior officers of the 9ID and other military organizations.

ISSUE RESOLUTION: Resolution of the test issues was based on interviews with key personnel and questionnaire data.

MAJOR FINDINGS: The Antiarmor Company (AACO) concept was found to be valid. The AACO was preferred by rating officers over the H-Series organization in both battalion operations and in the capability to conduct assigned missions. No significant span of control problems was found. The AACO was found to be easier to resupply than the H-Series. However, resupply and maintenance were identified as a continuous problem. Rifle companies were found to be easier to train and control under the AACO concept. Other pertinent findings were that personnel and equipment changes are needed at both battalion and company levels to improve capability, the AACO should have a FIST during all tactical operations, and the unit is severely affected by the lack of overhead cover during artillery barrages.

4. TEST TITLE: Operational Test of the Infantry Maneuver Concept (Motorized) (T5).

TEST ACTIVITY: USAIB

TEST DATES: Sep 81 - May 82

PURPOSE: The test investigated the impact of providing wheeled carriers to the infantry company for use in conducting tactical operations under simulated battlefield conditions. Specific test objectives were to: (a) collect data on the training of an infantry motorized unit; (b) provide data regarding the tactical employment of an infantry motorized unit; (c) collect data impacting on the logistics of an infantry motorized unit; (d) obtain data on the deployability of an infantry motorized unit; (e) gather data relating the human factors aspects of the infantry motorized concept; and (f) obtain data on the proposed organization of the infantry motorized unit. The test was conducted in three phases.

SCOPE, TACTICAL CONTEXT AND LIMITATIONS: The test was conducted over a 9-month period at Yakima Firing Center and Fort Lewis, WA. The effectiveness of the motorized infantry battalion was assessed through a series of ARTEP-type exercises and special training exercises in which the battalion participated. The test provided a subjective comparison of the motorized infantry battalion concept and the current light infantry battalion organization. The test battalion was organized at approximately 70 percent strength with rifle squads averaging six to seven men. Three phases of testing were conducted with each phase designed to address the specific objectives noted above.

ISSUE RESOLUTION: Resolution of the test issues was primarily accomplished through observation during training and FTXs, and through questionnaires.

MAJOR FINDINGS: Training: A unit can be trained on the motorized infantry concept in a reasonable period of time. Tactical Employment: The unit's capability to accomplish its assigned mission was enhanced by motorization. Logistics: The composition, organization, and use of combat/field trains by the test battalion during Phase III were not adequate to support a motorized unit. Deployability: Additional air and sea assets were required for the strategic deployment of a motorized unit over that of a light infantry unit. Human Factors: The test troops stated that the carrier would significantly increase the speed, mobility, and potential combat power of the light infantry. Organization: The TOE did not provide sufficient mechanics, recovery vehicles, and cargo trucks.

5. TEST TITLE: Two Company Antiarmor Concept (T12)

TEST ACTIVITY: ADEA

TEST DATES: Phase I: 20-23 Apr 82; Phase II: 10-13 May 82.

PURPOSE: The test investigated the impact of increasing an infantry Battalion's antiarmor assets by 100 percent. Stated objectives were to investigate the C3 implications; the employment implications; and the logistical implications of a two-company antiarmor task force.

SCOPE, TACTICAL CONTEXT AND LIMITATIONS: An infantry battalion task force was organized for testing with a Headquarters and Headquarters Company, one Motorized Infantry Company, one Mechanized Infantry Company, and a two-Antiarmor Company provided from the battalion's parent brigade. During Phase II, the additional Antiarmor Company was provided from an Oregon National Guard TOW Light Antitank Battalion (TLAT Bn). A third Antiarmor Company was under Operational Control (OPCON) for a 36-hour period from another 9ID Brigade. As a result of these different organizations, the number of TOW weapon systems varied from 30 to 60. Both phases were conducted during field exercises at Yakima Firing Center, WA. The test unit was required to respond to a scenario based on test events for the Cavalry Brigade Air Attack (CBAA) test.

ISSUE RESOLUTION: Resolution of the test issues was done through subjective questionnaires completed by the players.

MAJOR FINDINGS: The two-company antiarmor concept appeared to be a valid task force concept. The C3 functions associated with the increased number of TOW systems were found to be difficult, but were successful. Most communications problems were centered on the limited range of radios and overloaded frequencies. Employment of the task force requires a larger area for effective employment. Commanders at all levels felt their sectors of responsibility were too small for the increased number of TOWs. The battalion commander indicated frontages of 10-12 km would be more acceptable. (The battalion sector during the test was 6-7 km.) It was also found that the logistic assets within the battalion must be increased to provide for the additional resupply/support needs of the task force.

6. TEST TITLE: Light Motorized Infantry Battalion (LMIB) (T25)

TEST ACTIVITY: USAIB

TEST DATES: Phase I: 10 Jan - 25 Mar 83; Phase II: 6 Apr - 15 May 83

PURPOSE: The test investigated the proposed O&O concepts of the LMIB. Test objectives were to investigate: (a) transition training to a LMIB; (b) mobility; (c) firepower; (d) C3; (e) logistical and administrative supportability; (f) the proposed organization; (g) combat intelligence; (h) offensive, defensive, retrograde, and rear area combat operations (RACO); (i) human factors; and (j) vulnerability.

SCOPE, TACTICAL CONTEXT AND LIMITATIONS: Phase I consisted of unit tactical training at Fort Lewis, WA. Phase II consisted of a strategic deployment and a tactical lodgment by C-141/C-130 aircraft to Yakima Firing Center, WA, where the LMIB participated in a 9ID FTX (free-play) vehicles/weapons and the lack of instrumentation.

ISSUE RESOLUTION: Resolution of the test issues was based on noninstrumented test data, test manager's military experience, judgment, and subjective analysis of unit operational performance.

MAJOR FINDINGS: Obj 1: The tactical training conducted during Phase I provided the capability for the LMIB to perform the mission described in the O&O concept. Obj 2: The mobility of the LMIB could not be finally determined because of the use of surrogate vehicles. Obj 3: The LMIB (based on a subjective analysis of surrogate weapons) is equipped with or has ready access to the firepower required to perform movement to contact and delay missions. Firepower during the attack and defense was not tested. Obj 4: The LMIB has required C3 capability; however, communications equipment in the squads and platoons is inadequate. Obj 5: An assessment of the effectiveness of logistic, administrative, and medical supportability could not be made. Obj 6: The organization of the LMIB requires revisions. The LMIB squads need a direct fire support weapon(s), and a fire-and-forget antiarmor weapon. The LMIB also needs more effective and lighter weight night vision goggles and night navigational devices. Obj 7: The LMIB makes timely use of intelligence information received. Obj 8: The LMIB is capable of performing movement-to-contact and delay operations. The defense, attack and deep attack were not tested. Obj 9: The employment of the LMIB has no adverse effect on the personnel conducting combat missions. Obj 10: The survivability of the LMIB could not be determined because of test limitations.

7. TEST TITLE: Mobile Assault Gun Battalion (MAGB) (T34).

TEST ACTIVITY: USAIB

TEST DATES: Phase I: Jan - Mar 83; Phase II: 7 Apr - 15 May 83

PURPOSE: The test investigated the O&O concept of a MAGB. Test objectives were to investigate: (a) transition training to a MAGB; (b) mobility; (c) firepower; (d) C3; (e) logistical and administrative supportability; (f) the proposed organization; (g) combat intelligence (h) offensive, defensive, retrograde, and RACO; (i) human factors; and (j) vulnerability.

SCOPE, TACTICAL CONTEXT AND LIMITATIONS. Phase I consisted of ARTEP training at Fort Lewis, WA. Phase II consisted of a 9ID FTX (free-play) at Yakima Firing Center, WA. The test was limited by use of surrogate vehicles/weapons and the lack of instrumentation.

ISSUE RESOLUTION: Resolution of the test issues was based on noninstrumented test data and subjective comments by evaluators.

MAJOR FINDINGS: Obj 1: The tactical training conducted during Phase I provided the capability for the MAGB to perform the missions described in the O&O concept. Obj 2: The MAGB equipped with ITVs has the mobility required to perform the missions identified in the O&O concept. In addition, the MAGB equipped with ITVs can be transported by USAF C-130 and C-141B aircraft. Obj 3: The MAGB (based on a subjective analysis of the surrogate weapons used) has the firepower required to perform its assigned tactical missions. Obj 4: The MAGB communications equipment does not have adequate capabilities to operate internal battalion communications nets when controlling an attached LAB unit. Obj 5: Due to test limitations, an assessment of the effectiveness of logistic, administrative, and medical supportability could not be made. Obj 6: The organization of the MAGB requires some minor revisions in manpower levels and equipment. High-frequency, long-range radios for the MAGB TOC and commander are required. Obj 7: Adequate intelligence-gathering, disseminating, and processing capabilities are available within the MACE. Obj 8: The MAGB is capable of performing offensive and defensive operations as identified in the O&O concept. RACO and deep attack operations were not conducted during the test. Obj 9: The employment of the MAGB has no adverse effects on the personnel conducting the mission. Obj 10: The MAGB equipped with ITVs, can survive on the battlefield while moving, attacking, defending, or delaying.

8. STUDY TITLE: Combined Arms Battalion (CAB) Study

STUDY ACTIVITY: USAIS/TRASANA

DATE COMPLETED: Sep 84

PURPOSE: The Combined Arms Battalion Study determined the operational effectiveness of the Combined Arms Battalion (Heavy) (CAB(H)) and the Combined Arms Battalion (Light) (CAB(L)) in both offensive and defensive combat scenarios. Additionally, the study sought to gain insights into CAB survivability capability and access to firepower.

SCENARIO: CAB(H) and CAB(L) will be examined in the most current standard scenarios for Europe and the Middle East.

SCOPE AND/OR TACTICAL CONTEXT: Force structures examined were at battalion level and below. Efforts were made to consider the environmental conditions of continuous combat, electronic countermeasures, smoke, aerosols, rain, fog, haze, and dust. The analysis was conducted using the current 9ID O&O concepts. The results of the Light Attack Battalion (LAB) Study and the HTLD Task Force Study were used as an integral part of the Study.

METHODOLOGY: The study was based on the use of the JANUS Wargame at TRASANA, White Sands Missile Range, NM. JANUS is a closed, interactive, two-sided, fully computerized wargame. It was produced by Lawrence Livermore National Laboratory and the TRADOC element at Lawrence Livermore. It plays all maneuver elements including dismounted infantry and precision-guided munitions. Color graphics displays for both Red and Blue players are digitized terrain representations with a remote "mouse" input device for each player. Automatic functions include target acquisition, direct fire and movement rate. Interactive functions include deployment of forces, task organization, line-of-sight display, barrier planning, movement objectives, formations, artillery planning, and mounting/dismounting.

ISSUE RESOLUTION: Resolution of the study issues was based on MOEs (e.g., loss exchange ratio, force exchange ration, weapon efficiency, engagement times), gamer insights, and controller insights.

FINDINGS: Both (CAB(H) and CAB(L) can be operationally effective in both the offensive and the defense in both Middle Eastern and European scenarios. The CAB(H) was superior in operational effectiveness to the CAB(L) in the offense in the Middle East and the defense in both the European and Middle East scenarios.

Based on CAB(H) and CAB(L) force structure gamed and studied, both units are equipped with or have access to the requisite firepower to accomplish the missions identified in the operational concept. Indications from gaming are that both units would enjoy greater operational effectiveness (particularly in a Middle Eastern contingency) if they had more FLOTs and Ground-Launched HELLFIRE (GLH) units. Also, supporting artillery should be allocated more smoke in their basic loads.

Due to their organic firepower and inherent mobility, the CAB(H) and the CAB(L) have the capacity to survive on the modern battlefield. If the missile range on the ITV was extended (to offset the present advantage enjoyed by the Threat in the AT-5 missile), survivability would be enhanced. The Combined Arms aspect of the CABS allows the commander the flexibility to task-organize to counter a specific threat. This organic combination of dismounted and mounted strength, both mobile, provides a relatively light, yet powerful force.

The CABS do, however, lack a strong dismounted infantry strength. This deficiency shows up in those instances when the terrain is "closed" and the fighting becomes very close combat. Additionally, the current Assault Gun, the ITV, does not lend itself to actually closing with the dismounted enemy. An attack is more an attack by fire than a "closing with the enemy in order to destroy or capture him..."

9. STUDY TITLE: Tactical Mobility Study

STUDY ACTIVITY: Waterways Experimentation Station (WES)

DATE COMPLETED: Sep 84

PURPOSE: This study made systematic comparisons of the mobility of alternative 9ID (HTLD) vehicle configurations to the C-Series and Mechanized Infantry Divisions. Specific objectives included mobility evaluations of selected vehicles towing various artillery, selected vehicles with nonrated payloads, and the effects of various terrain and weather conditions.

SCENARIO: A comparison of tactical mobility was conducted for terrain within selected SCORES scenario areas of the Middle East, Korea and Europe under the appropriate variations in seasonal conditions.

SCOPE AND/OR TACTICAL CONTEXT: This study was limited to comparing the tactical mobility of single vehicles and for tactical mixes of single vehicles to develop simple, clear displays of results suitable for use by top decisionmakers. Force-on-force modeling was conducted. Single vehicles for which predictions were made will be limited to 30 to 35 vehicles selected from the present and proposed equipment in the three types of organizations considered in the study.

METHODOLOGY: Predictions were made using the Army Mobility Model (AMM). WES' mobility performance predictions from past studies were canvassed to recoup those for vehicle/terrain/conditions that are included in the present study, rather than to rerun them. These predictions in the several areas and seasonal conditions formed the database for subsequent analysis. Analysis results were in the form of simple statistics and/or maps, variously aggregated, comparing speed potentials of the several vehicles; of mixes of vehicles within each type of organization which must retain unit integrity during stated missions; and of speed measures at the unit level. The final step in the study was to aggregate results in a meaningful way and to display them simply and clearly.

FINDINGS: 9ID(Mtz) is significantly more mobile than Infantry Division in offense and defense in NORTHAG, CENTAG, and Southwest Asia. 9ID(Mtz's) mobility in NORTHAG, CENTAG, and Southwest Asia approximates that of the Mechanized Division and can, therefore, be cross-attached with no significant mobility problems.

9ID(Mtz's) mobility in Korea is superior to the Infantry Division only in offense (not defense) and inferior to the Mechanized Division in offense and defense.

Combat support/combat service support (CS/CSS) mobility is compatible with maneuver unit mobility. The new 5-ton M923 provides significantly mobility improvements in CS/CSS units.

10. STUDY TITLE: Capabilities of the Light Infantry Platoon-Motorized (CLIP-M).

STUDY ACTIVITY: CDEC

DATE CONDUCTED: Apr - Jun 84.

PURPOSE: To provide data and associated analysis on organization, mission performance, command and control, fire power, and survivability to the Motorized Infantry Platoon in comparison with a C-Series Rifle Platoon.

SCENARIOS: CLIP-M was a force-on-force test, employing real-time casualty assessment (RTCA) methodology. The test compared the performance of a Motorized Infantry Platoon with a baseline C-series Rifle Platoon. The combat performance of each type platoon was assessed while conducting a deliberate attack at night and a defense during the day.

SCOPE AND/OR TACTICAL CONTENT: Both types of tested units received identical missions based on accepted European and Middle Eastern scenarios. The opposing forces (OPFOR) mission remained constant. The tested units developed their own plan to accomplish their mission consistent with tactical doctrine.

ISSUE RESOLUTION: Resolution of test issues was based on (MOEs) (e.g., mission accomplishment, loss exchange ratio, force exchange ration, movement ratio, percent of targets paired) determined from RTCA data and controller observations.

FINDINGS: The Motorized Platoon accomplished 35 of 42 missions while the Rifle Platoon accomplished 18 of 45 missions. The Motorized Platoon killed 85 out of a possible 97 Red Tanks/EMPs and the Rifle Platoon killed 52 out of a possible 100 Red Tanks/EMPs. Red rate of advance was 22 kph against the Motorized Platoon and 31 kph against the Rifle Platoon.

11. STUDY TITLE: CAB(H) Comparisons

STUDY ACTIVITY: ADEA

DATE COMPLETED: Dec 84

PURPOSE: To identify any potential differences in the maximum kill potential of the CAB(H) when the HMMWV is armed with the MK-19, the GMG-30mm, or half of each. Kill Potential Model (KIPM) was used as the analysis tool.

METHODOLOGY: This comparison used the KIPM, an ADEA-developed stowed kill model. KIPM uses the PSSK and available rounds of a system to compute an expected value of maximum kill potential for that system. That expected value is multiplied by the number of that type system to determine the maximum total kill potential for that set of weapons. The sum of the sets for each type weapon system makes the maximum kill potential for the organization. The process is used against three type targets: Tank (generic), Lightly Armored Vehicle (generic LAV) and personnel. In all cases, the targets and stationary tanks are fully exposed.

COMPARISON: This comparison has three cases: CAB(H) with all HMMWVs armed with MK-19, replacement of all MK-19s with GMG-30mm, and a 50 percent mixture of MK-19 and GMG-30mm. The comparison covers only LAVs and personnel as targets, since this type of model is not sensitive to the number of weapons that remain constant. This means that the tank kills would remain constant since the number of AT weapons systems does not change.

Maximum Kill Potential against LAV. Whenever GMG-30mm are introduced into the battalion, the kill potential increases dramatically at short ranges. This kill potential remains above that of the pure MK-19 throughout all ranges. At ranges greater than 2 km, the MK-19 has no contribution to the battle, but the GMG-30mm does.

Maximum Kill Potential against Personnel. No difference is observed between weapons systems at all ranges up to 2 kms. The GMG has kill- potential past 2 km but which is not significant.

Comments. In a defensive situation, moving targets would create more difficulties for the MK-19s. At 1 km, a target moving at 7 meters per second would traverse 70 meters (10 second TOF for MK-19 at that range), while the same target would traverse 7 meters when engaged by the GMG-1320mm (1 sec TOF).

12. STUDY TITLE: Interim AGS Analysis

STUDY ACTIVITY: ADEA

DATE COMPLETED: May 85

PURPOSE: To examine the combat effectiveness of alternative mixes of HMMVV-TOW as the AGS in the CAB.

SCENARIO: CAB was played in a Southwest Asian offensive scenario.

SCOPE AND/OR TACTICAL CONTENT: Six games were played with the HMMVV-TOW II as the AGS (two games each with 24, 30 and 40 TOWs in a CAB). Assault Gun companies moved from hidden positions to attack the Red forces in designated engagement areas. Blue used smoke to conceal movement and began engaging Red at 3,700 meters. Blue withdrew before becoming decisively engaged and the game was terminated.

METHODOLOGY: The JANUS wargame at TRASANA was used for the analysis.

ISSUE RESOLUTION: Resolution was based on MOEs as determined by the numerical results of the wargame.

FINDINGS: FERs percent ranged 1.14 to 2.31. The TOW II killed 153 of the 266 total Red losses (61). A long-range antitank weapon is necessary in the HTMD and when effectively analyzed, TOW II was able to achieve a favorable exchange ratio.

13 STUDY TITLE: Interim-Motorized Infantry Division Capability Analysis (I-MIDCA)

STUDY ACTIVITY: Sponsor was ODCSOPS; Study Agency was TRASANA.

DATE COMPLETED: Aug 85

PURPOSE: To conduct a comparative analysis of the 9ID objective design with each proposed alternative design by measuring the capability of each design.

Portions of the war/fight analysis (JANUS and CARMONETTE) used the CAB as the base organization to examine candidate AGSs.

JANUS APPROACH: Both European (TRADOC STD MECH IN ATCK Scenario) and Southwest Asian (CAB Study Offense Scenario) scenarios were gamed for both the CAB(H) and CAB(L). Red force in Europe consisted of a company (+) recon element; Red force in Southwest Asia was a battalion. The scenario for the European game was not representative of the 9ID O&O concept, but was not considered unreasonable, as a battalion mission of this type could occur, although infrequently.

A total of 42 games were played using four AGS candidates - M60A3, 10AGS, 120AGS, and the HMMWV-TOW in the objective design CAB. Games were also played for the MBT OBJ SUB design (called M60A3 Task Force (TF) by TRASANA).

The European scenario required the Blue force to seize three objectives (villages) which were occupied by the Red force. This requirement was relaxed somewhat, so that the end-of-game criteria was seizure of all objectives or all red forces destroyed on the objective. This scenario required more extensive use of dismounted infantry than the more typical HIMD missions. HIMD tactics were used to the extent possible; however, this represents a typical scenario for HIMD in Europe. Force exchange ratios for the CAB(H) FERS varied from 1.3 to 1.9 and from 1.7 to 2.3 for the CAB(L).

The Southwest Asian scenario was a modified version of the scenario used in the 1984 CAB Study and the 1985 Armor School AGS COEA. This scenario was called an attack, but is best described as a meeting engagement. The large open areas in Southwest Asia limited Red smoke effectiveness and, therefore, increased GLLD performance. Air-to-Air Stinger was the most effective air defense system available in the force, and DPICM effectiveness on a moving enemy force was extremely low. Maximum use was made of dismounted infantry and indirect fire, such that contribution of the AGS was lower than expected. FERS for the CAB(H) was from 1.0 to 3.4 and from 2.0 to 4.1 for the CAB(L). The HMMWV-TOW outperformed all other candidates in the Southwest Asian environment.

CARMONETTE APPROACH: TRASANA utilized the CARMONETTE Model using TRASANA personnel. CARMONETTE is a two-sided, event-sequenced, stochastic combat simulation. It runs automatically on the machine once it is started and will play up to a reinforced battalion. Combat activities represented in the model include movement, acquisition, firing and limited communication between units. Once scenarios are developed and set up for computer operation, the runs require approximately 35 to 40 minutes of computer time to complete the same amount of conflict time in the model.

Analysis consisted of gaming the AGS candidates in Southwest Asian and European scenarios. The Southwest Asian scenario was the same delay scenario used in the AGS COEA wargaming. This scenario was the same delay scenario was a general purpose scenario for that COEA. It was a Light Cav Company with an AT platoon consisting of six HMMWV-TOWs. It has a single GLLD for Copperhead play and intense bispectral smoke play. The European scenario was a mobile defense with the tactics modified by ADEA. In this scenario, the Blue force allowed the enemy to pass, then attacked their flanks and rear. Deployment

and extraction of the Blue was not considered. Both scenarios played 9ID tactics to the extent that time would allow.

Both scenarios played the 105 AGS, 120 AGS, HMMWV, M60A3, and M60A3 with applique armor. Excursions with extensive Red artillery preparation of the Blue positions were played in Southwest Asia. These showed HMMWV-TOW's vulnerabilities to artillery, if they did not employ a tactic to move frequently. Southwest Asia FERS ranged from 0.5 to 1.2 and European FERS from 1.5 to 3.6.

APPENDIX E

REFERENCES

| <u>Source</u> | <u>Date</u> | <u>Subject</u> |
|----------------------|----------------|--|
| Msg, Cdr, 9ID (MTZ) | 251500Z Jul 85 | Motorized O & O Instrumented Appraisal |
| Msg, CG, III Corps | 262030Z Jul 85 | Motorized O & O Instrumented Appraisal |
| Msg, DA DCSOPS | 302057Z Jul 85 | Armored Gun System (AGS) |
| Msg, Cdr, NTC | 311530Z Jul 85 | Motorized O & O Instrumented Appraisal |
| Msg, Cdr, OTEA | 311646Z Jul 85 | Motorized O & O Instrumented Appraisal |
| Msg, Cdr, TCATA | 311949Z Jul 85 | Motorized O & O Instrumented Appraisal |
| Msg, Comdt, USAIS | 012000Z Aug 85 | O & O Instrumented Appraisal |
| Msg, Cdr, USAARMC | 121730Z Aug 85 | Motorized O & O Instrumented Appraisal |
| Msg, Cdr, CAC | 161555Z Jul 85 | Motorized O & O Instrumented Appraisal |
| Msg, DCSOPS, FORSCOM | 162045Z Aug 85 | Motorized O & O Instrumented Appraisal |
| Msg, Cdr, ADEA | 112200Z Sep 85 | Motorized Combined Arms Battalion Instrumented Appraisal |
| Msg, Cdr, ADEA | 182115Z Sep 85 | Motorized Combed Arms Battalion Instrumented Appraisal |
| Msg, Cdr, ADEA | 312300Z Dec 85 | CAB Test Evaluation Plan Briefing to the ADEA DA Evaluation Program Review |

APPENDIX F

DEFINITIONS

An initial force ratio (IFR) is the ratio of red systems to blue systems at the beginning of the battle. Systems are defined as major weapons systems, i.e., TOW, Dragon, mortars, MK-19, etc.

$IFR = \text{Number of Red Systems} / \text{Number of Blue Systems}.$

A loss exchange ratio (LER) is the ratio of red losses to blue losses of weapons systems or personnel.

$LER = \text{Red losses} / \text{Blue losses}.$

A force exchange ratio (FER) is the ratio of the LER to the IFR.

$FER = LER / IFR.$

MODE-FDD-FT

SUBJECT: Minutes of the CAB(H) Evaluation Advisory Group Meeting, 3 Apr 86.

1. "Test" Advisory Group (TAB A) met in Dr. Fallin's office 030800 Apr 86 and as first order of business, decided its function. It is an advisory group for the overall CAB(H) evaluation, hence renamed the Evaluation Advisory Group (EAG). Its specific objectives are to:

- a. Recommend that Cdr, CAC, the independent evaluator, approve final EP.
- b. Recommend that Cdr, TCATA, the tester, approve the final Test Design Plan for the company team test.
- c. Recommend that Cdr, CAC, approve the evaluation report of the company-team test report.
- d. Recommend to Cdr, 9ID(MTZ), particular areas of evaluation interest for the NTC training density.
- e. Recommend that CDR, CAC, approve the Independent Evaluation Report.

2. MAJ Edwards, ADEA, outlined the program of briefings and gave an overview of the Front End Analysis (FEA) that had been completed by ADEA (TAB B.) The FEA showed little of statistical relevance for the Co/Tm Test.

Comments during this period were:

- Must ensure the Co/Tm test report is not put out as an interim report of the overall evaluation. There will be a TCATA report on the company team test and a CAC evaluation thereof as a logical step toward the battalion-level evaluation.

- The Independent Evaluator (CAC) will give its product to the customer, Cdr, 9ID(MTZ)/ADEA, who in turn will complete the circle by briefing the VCSA. Co-proponents will also be given copies for use in future work with the Motorized Division.

- Need to ensure proper emphasis for special areas of interest in extracting data from the standard NTC training density. Shaping of the scenario is extremely important.

- Agreed that the purpose of the Company/Team Test was: To conduct an instrumented test of the current design of a Combined Arms Battalion (Heavy) Company Team in order to assess the O&O concept.

- The roles and functions of the EAG should be included in the EP. (CAC action)

- Once the EP has been approved by the EAG, and signed by Cdr, CAC, copies will be furnished to all members of GOSC for information.

3. LTC Bowman, ADEA, discussed ADEA and 9ID(MTZ) concerns with the Company Team Test, to ensure all members of the EAG understood those concerns. (copies at TAB C).

Comments:

- Dr. Fallin asked whether additional front end analysis/gaming can be conducted to help design the test? Consensus was that there had been sufficient analyses and it was time to get on with field testing, especially because the test design process was already well developed.

- ADEA explained that it will do some JANUS gaming in preparation for the Company/Team Test, but is not planning to publish a formal report. The purpose of the gaming will be to assess tactical techniques.

- Dr. Fallin felt that follow-on studies, after the CO/TM test, should be part of the overall evaluation.

- EAG agreed that an organizational baseline could not be established due to funding/time/manpower limitation. Dr. Fallin noted that the baseline is how well the company does in comparison with its doctrine, FC 7-53.

4. LTC Dipple, CAC, discussed the EP. (Briefing slides at TAB D). CAC found additional supporting studies and analyses to add to those submitted by ADEA. In general the EAG felt the EP was well-written.

Comments:

- Specifically include organic ground tactical mobility to the overall mobility issue. (CAC action)

- Add an issue on strategic deployability. The answer is already in hand through analysis, but it should be a part of the overall Independent Evaluation Report. (CAC action) (It is not, however, part of the Co/Team Test Report.)

- Change logistic issue to focus on unit self-sufficiency.

- The ARMVAL test should be added to the CAC listing of additional studies. (CAC Action) The ARMVAL Test does have some quantitative engagement data. Dr. Fallin has a copy of the results and will make it available for CAC review.

- Annex A of EP should be changed to reflect that the Company/Team Test Evaluation Report is to be published on 7 Jan 87.

- Just how the Evaluation Report Writers/Advisors tie in to the evaluation process is to be addressed at the TCATA Scenario Development meeting. Included in the lash-up will be USAAVNS, USAES, USAFLS, USALOGC. CAC representatives stated that these organizations would ask ADEA to pay for observers to represent the Independent Evaluator.

5. MAJ Rogers, USAIS, discussed motorized doctrine available at this time. FC 7-53, Assault Gun Company, is out in draft for comment and will be available for use by 9ID(MTZ) and T&E agencies.

Comment:

- The draft is considered by the 9ID (MTZ) representative to be of sufficient quality for use in TCATA test design planning.

6. MAJ Riddle, USAARMS, discussed the Test Support Package, which includes the threat and overall scenario. Scenario and threat are based on SW Asia scenario used for the I-MIDCA Study. Copies of the scenario and threat were distributed (classified). TCATA will use the threat and scenario, once approved by CAC, Threat Division, to design, with 9ID(MTZ), specific test cells.

Comments:

- The scenario must be made into an unclassified version to avoid unnecessary security complications. (USAARMS ACTION)

- In order to turn the overview scenario and threat into a workable test vehicle, a meeting will be required before 20 Apr to define all the METT-T factors for each of the specific test design cells. Meeting will be attended by CAC (TIED and THREAT), AR School, TCATA, and 9ID(MTZ). (TCATA Action)

7. LTC Peterson, TCATA, then discussed initial test planning for the Co/Tm test. (Briefing slides at TAB E.)

Main Points:

- Within the constraints for this test, it will be classified as information testing.

- Per request from CG, 9ID(MTZ), TCATA will restructure the tactical missions so that 50% of the replications are offensive, 50% defensive. 9ID(MTZ)/ADEA must decide what test design cells (i.e. attack, defend, etc.) and how many iterations of each are desired. (9ID(MTZ)/ADEA).

- Delay scenario - 8 hrs (day & night)
- Defend scenario - 6 hrs (day & night)
- Attack scenario - 4 hrs (night only)

- It is important to use two instrumented companies, rather than one, in order to keep the instrumentation at a satisfactory level of operation and to run more iterations in the limited available time. EAG agreed.

- To keep OPFOR from gaining advantage, terrain will be reoriented throughout the test to preclude knowledge of specific terrain from skewing test results.

- OPFOR will not be free play; will be controlled.
- HMMWV TOW cannot readily be dismounted due to instrumentation. TCATA will attempt to integrate DRAGON into TAFIS and program DRAGONS as TOWs for those times when the TOW would be dismounted tactically. (ACTION TCATA)
- OPFOR will have their thermal devices secured so that they will not have greater night capability than threat actually has.
- Indirect fire and minefields will be played using developmental instrumentation. Back-ups are field controllers.
- MK19's cannot be dismounted. TCATA will attempt to rectify this. (ACTION TCATA)
- Coaxial video will be used for all daylight friendly engagements to increase reliability of instrumentation pairings. There will be no night video.
- FA suppression will be played which will not allow weapon systems to fire while being suppressed. (ACTION TCATA)
- Ammo and fuel consumption data will be recorded.
- Current cost is \$5.2M

Comments:

- Maximum available OPFOR will consist of 38 BMP's (Bradley) and 13 T64(M1).
- Specific allocations of types of ammo (Copperhead/FASCAM, etc.) available to the Co/Tm will be decided at upcoming TCATA meeting. (ACTION 9ID(MTZ)/TCATA)
- OPFOR will have no IR searchlight capability, which degrades their capabilities. Need to rectify. (ACTION TCATA)
- The final test iterations may be in jeopardy if significant problems arise, due to the tight schedule.

8. Conclusions by Dr. Fallin:

- EP criteria should be changed from "Investigative in nature" to read along the lines: "Criteria Parameters will be examined by the Independent Evaluator and proponent to determine relative success."
- CAC will add this change to the EP. A discussion of the revised criteria in the EP will be added to the agenda of the upcoming meeting called by TCATA.

- CAC will revise the EP to reflect changes laid out by the EAG, send copies to EAG members for concurrence, and pass EAG's recommendation to Cdr, CAC, for signature on the final EP.

- 9ID(MTZ)/ADEA must coordinate with TCATA to determine the number and type of offensive and defensive test design cells and iterations that will be developed.

- The CAB(H) Co/Tm test has a relatively low priority from ODCSOPS in relation to three other tests that will be run at Ft Hood before or approximately at the same time as the CAB(H) Co/Tm test: The Bradley test, PCF test, RPV test. Changes in schedule for these tests could adversely affect the timing of the Co/Tm test.

9. The meeting was adjourned by Dr. Fallin at 1215 hrs.

ATTENDEES

| <u>NAME</u> | <u>OFFICE SYMBOL</u> | <u>PHONE</u> |
|--------------------------|--------------------------------|--------------|
| LTC Steve Bowman | Chief, Firepower TM, ADEA | 357-8124 |
| COL Larry Dacunto | Cdr, 2d Bde 9ID (MTZ) | 357-6861 |
| Dr. Gary Colonna | TIED,CAC | 552-5680 |
| Howard Whittley | ODUSA(OR) | |
| Col John Theologos | Dir, CBT, ARMS TEST DIR, TCATA | 738-9005 |
| LTC E.H. Dippel | CAC TIED | 552-3655 |
| MAJ Stephen Rodgers | Doctrine, Infantry, School | 835-7162 |
| CPT Russ Forshag | CATD, TCATA | 738-9823 |
| MAJ Bruce Riddle | ATSB-CD-TE, Armor School | 464-1909 |
| CPT Doug Grice | TRADOC Liaison Element, ADEA | 357-8124 |
| LTC Lawrence C. Peterson | TCATA METH AND ANALYSIS | 738-9996 |
| MAJ Larry Edwards | ADEA/MODE-FDD-MT | 357-8542 |

END

DT/C

8-86